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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,166	03/23/2004	Jin-Chung Bai	BAIJ3002/EM	2188

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EXAMINER	
MAGEE, THOMAS J	
ART UNIT	**PAPER NUMBER**
2811	

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

14-A

Office Action Summary	Application No.	Applicant(s)	
	10/806,166	BAI ET AL.	
	Examiner	Art Unit	
	Thomas J. Magee	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawing Corrections

1. Replacement Drawing for Figure 8 in Letter of 03 January 2005 is acknowledged and deemed to be acceptable.

Claim Objections

2. In Claim 10, there is an apparent typographical error. The limitation states, ".... *the first adhesive layer is substantial equal,"* and should state, "..... the first adhesive layer is substantially equal." Correction is required.

3. The corrections to Claims 6 and 10 are acceptable, and as such, the objections are here-with removed.

Claim Rejections – 35 U.S.C. 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 – 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Karnezos (US 6,838,761 B2).

6. Regarding Claim 1, Karnezos discloses a stacked semiconductor device comprising:

a substrate (412) (Figure 7) having a conductor pattern and a die bonding portion, wherein the conductor pattern has pads (421) (Col.13, lines 65 – 67),

a first die (414) bonded on the die bonding portion of the substrate and having pads, thereon, wherein the pads of the first die (414) are electrically connected to the pads of the conductor pattern by wires (416) (Col. 2, lines 62 – 65).

a first adhesive layer (417) provided on the substrate (412) to cover the first die (414) and the wires (416), wherein the first adhesive layer has a top and a portion of said adhesive layer is contiguous with the substrate, and

a second die (714) bonded "on" the top of the first adhesive layer and having pads thereon, wherein the pads of the second die are electrically connected to the pads of the conductor pattern by wires (716,718).

7. Regarding Claim 2, Karnezos discloses a second adhesive layer (717) provided "on" the substrate to cover the second die (714) and wires (716).

8. Regarding Claim 3, Karnezos discloses (See Figure 7) that the size of the top of the first adhesive layer (417) is greater than a size of a top of the first die (414)

Claim Rejections – 35 U.S.C. 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 4 – 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karnezos, as applied to Claims 1 – 3, and further in view of Hur et al. (US 6,833,287 B1).

11. Regarding Claims 4 and 5, Karnezos does not disclose that the top of the first adhesive layer is substantially equal to a size of a bottom of the second die. Hur et al. disclose stacked semiconductor device (Figure 6), wherein the second die (500) is larger than the first die (102) (Col. 6, lines 30 – 31). Using the configuration of Hur et al. with a larger die on top, the top of the adhesive layer and the bottom of the second (top) die can be substantially equal. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Hur et al. with Karnezos to obtain an efficiently packaged structure of improved reliability.

12. Regarding Claim 6, Karnezos discloses a stacked semiconductor device comprising:

a substrate (412) (Figure 7) having a conductor pattern and a die bonding portion, wherein the conductor pattern has pads (421) (Col.13, lines 65 – 67),

a first die (414) bonded on the die bonding portion of the substrate and having pads, thereon, wherein the first die are electrically connected to the pads of the conductor pattern by wires (416) (Col. 2, lines 62 – 65).

a first adhesive layer (417) provided on the substrate (412) to cover the first die (414) wherein the first adhesive layer (417) has a top and the size of the top thereof is greater than a size of a top of the first die (414) and a portion of said adhesive layer is contiguous with the substrate, and

a second die (714) bonded "on" the top of the first adhesive layer and having pads thereon, wherein the pads of the second die are electrically connected to the pads of the conductor pattern.

Karnezos does not disclose that the size of the second die is greater than the size of the first die. Hur et al. disclose stacked semiconductor die (Figure 6), wherein the second die (500) is larger than the first die (102) (Col. 6, lines 30 – 31). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Hur et al. with Karnezos to obtain an efficiently packaged structure of improved reliability.

13. Regarding Claim 7, Karnezos discloses a second adhesive layer (717) provided "on" the substrate to cover the second die.

14. Regarding Claim 8, Karnezos discloses wherein the second die is electrically connected to the pads of the conductor pattern by wires (716,718), and the second adhesive layer covers both the second die (714) and wires (716).

15. Regarding Claim 9, Karnezos discloses that the first die (414) is electrically connected to the pads of the conductor pattern by wires (416) and a first adhesive layer (417) covers the first die (414) and the wires (416).

16. Regarding Claim 10, Karnezos discloses (See Figure 7) that the top of the first adhesive layer is substantially equal to a size of a bottom of the second die.

Response to Arguments

13. Applicant's arguments with respect to claims have been carefully considered but are moot in terms of the new ground(s) of rejection.

Conclusions

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to **Thomas Magee**, whose telephone number is **(571) 272 1658.** The Examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM (EST). If attempts to reach the Examiner by telephone are unsuccessful, the examiner's supervisor, **Eddie Lee**, can be reached on **(571) 272-1732.** The fax number for the organization where this application or proceeding is assigned is **(703) 872-9306.**

Thomas Magee
March 16, 2005

EDDIE LEE
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